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GRAIN TRANSPORTATION, YESTERDAY, TODAY AND TOMORROW

By

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Introduction

It is my pleasure to be here today as a member of a grain transportation panel to discuss some of the problems of grain transportation with the members of the Ohio Grain and Feed Association (OGFA) and Ohio Fertilizer and Pesticide Association (OFPA). Your decision to include a transportation panel as part of your program at this annual meeting is certainly an indication that transportation problems continue to be foremost in the minds of grain, feed, fertilizer and pesticide shippers. The decade of the 1970s has been one of major problems and adjustment in our transportation industry. Without a doubt, the transportation industry entered the 1980s with considerable fanfare with the passage of the Motor Carrier Act of 1980 and the Staggers Rail Act of 1980. It is already clear from Mr. Rodman Kober's excellent discussion of the Staggers Rail Act of 1980 that the decade of the 1980s will also be one of major adjustments in our transportation industry. My purpose here today is to review the accomplishments of the 1970s and discuss what the 1980s may hold for grain and feed shippers. The first part of the paper will focus on the demand for transportation services at the national and state level. This will be followed by a brief discussion of the supply of transportation facilities at the national level and a more detailed discussion of trans-

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portation services in the state of Ohio. The final section will discuss the problems and issues of grain transportation in the 1980s.

Demand For Transportation Services In U.S.

The U.S. has experienced enormous increases in the demand for transportation services during the 1970s. As can be seen in Table 1, the production of three major commodities: corn, wheat and soybeans, has expanded rapidly in the 1970s. The slowest rate of increase in production has been that for corn which increased by 33 percent while wheat production increased by 40 percent and soybean production by 70 percent from the early 1970s to the end of the decade. On the other hand, domestic consumption of corn and soybeans increased about 20 percent for each product while the consumption of wheat remained about the same during this same period. However, these production and consumption changes tell only part of the story; the most dramatic change has been in grain exports. Corn exports have increased by two and a half times or from about one billion bushels to about two and a half billion bushels during the decade of the 1970s. Wheat exports have increased by approximately 60 percent and soybean exports have nearly doubled during this same period. Even though exports of all three commodities have increased very rapidly, corn exports have increased the fastest yet corn production increased less rapidly than the production of wheat or soybeans. This rapid increase in corn exports has been possible because corn farmers not only increased corn production but also increased the proportion of that production which is marketed or sold off the farm.

The above data demonstrate that we have seen not only large increases in the demand for transportation services but also in the

Table 1

U.S. Production and Exports of Corn
Wheat and Soybeans

1971-1980

	Production			Exports			Domestic Use		
	Corn	Wheat	S Bean	Corn	Wheat	S Bean	Corn	Wheat	S Bean
	- - - - 000,000 bu. - - - -								
1971	5641	1618	1176	796	632	417	4387	855	786
1972	5573	1545	1271	1258	1186	480	4733	785	803
1973	5647	1711	1547	1243	1217	540	4631	754	895
1974	4703	1782	1215	1149	1018	421	3677	672	780
1975	5831	2124	1547	1711	1173	555	4082	721	936
1976	6271	2145	1288	1684	950	564	4100	748	866
1977	6425	2038	1762	1948	1124	700	4260	850	1004
1978	7276	1778	1870	2133	1194	753	4943	837	1104
1979	7940	2136	2268	2433	1375	875	5214	782	1208
1980	6649	2372	1817	2600[a/]	1525[a/]	800[a/]	5100[a/]	840[a/]	1180[a/]

[a/] Estimated as of February 1, 1981

Source: Wallace Barr and John Sharp, Extension Economists, The Ohio State University and U.S.D.A., Agricultural Statistics.

market which those transportation services must serve. That is, the demand for transportation services has shifted from a transportation system which was primarily oriented to serving U.S. domestic demand for these commodities toward one that has placed greatly increased importance upon a transportation system to serve the export market. Such a change in demand has affected the size, type, location and seasonal demand for transportation services.

Demand For Transportation Services In Ohio

The demand for transportation services in Ohio has increased at rates similar to those nationally. As can be seen in Table 2, Ohio corn production increased by slightly over 40 percent which is a faster rate than the national average during the decade of the 1970s. Wheat production increased by nearly 50 percent in the same period, however, no definite trend can be established because of the extreme variability in wheat production during the 1970s. Soybean production which increased by about 75 percent had the fastest rate of growth in the 1970s. Since consumption of grain products by livestock in Ohio has remained relatively constant during the 1970s, the production increases, especially in the case of corn, have meant that an even larger percentage of production moved off the farm to markets. This has occurred mainly because consumption of corn by livestock as a percent of production has declined from 56 percent in 1970 to about 34 percent in the late 1970s. Export demand for Ohio grain and oilseeds has kept pace with, if not exceeded, the increases in export demand nationally.

Table 2
Ohio Production of Corn, Wheat and Soybeans
1971-1980

	PRODUCTION		
	Corn	Wheat	Soybeans
	- - - - - 000,000 bu. - - - - -		
1971	322	41	80
1972	284	46	79
1973	240	23	89
1974	266	64	81
1975	321	74	102
1976	396	66	95
1977	380	72	119
1978	379	42	127
1979	417	63	145
1980[a/]	440	67	135

[a/] Estimated as of January 23, 1981

Source: Ohio Agricultural Statistics and Ohio Crop Reporting Service

Supply of Transportation Facilities[1/]

The supply of transportation services has changed dramatically in an attempt to respond to these changing demands for grain. For example, only a few unit train loading facilities were in operation by 1970 and these were located in central Illinois. Nationally, about 240 unit train loading facilities were in operation by 1976 and that number has almost doubled by the end of the decade. The growth of barge loading facilities increased rapidly to over 250 by 1976 and is estimated to be over 300 at the present time. New export loading facilities as well as terminals and country elevators were built to accommodate this increased grain production and demand for transportation services.

Grain market structure in Ohio also changed dramatically in response to this export demand. The number of unit train loading facilities increased from a couple in the early 1970s to about 34 by the end of the decade. In a similar manner new export facilities were built at the Toledo Port and several new barge loading facilities were built on the Ohio River. During this same period the number of elevators and feed mills has been declining at about a 1.3 percent annual rate and the size of these facilities has been increasing.

Ohio Grain Flow Study

The increases in demand for transportation services discussed above have resulted in major changes in Ohio grain flows. These

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[1/] Sharp, John W. "Grain Facilities in the U.S. Specializing in Originating Grain for Export and Soybean Processing Plants." Ohio Agricultural Research and Development Center, Wooster, Ohio Circular 241, September, 1978.

changes in grain flows by mode of transportation and type of grain firm from 1970 to 1977 have been recently published by the Ohio Agricultural Research and Development Center and The Ohio State University. This study of grain flows was a part of a nationwide study of grain flows involving over 40 states which has recently been carried out by a Southern Regional Research Committee and a North Central Regional Research Committee. The Ohio results have been published and the national results will be available in the near future and will be presented at a National Conference on Grain Marketing Patterns at Memphis, Tennessee, on March 12 and 13, 1981. Three Ohio State faculty members, John Sharp, Dean Baldwin, and myself, as well as one research associate, Gary Hennen, were involved in this research project. If you would like a copy of the Ohio study, the national study or want to attend the Memphis conference, contact any one of the above Ohio State faculty members for the necessary information.[2/]

I would like to present to you some of the major findings of this study and would also like to thank you for your cooperation in this research project. A sample of 140 grain establishments was selected from a total population of 811 establishments in the state of Ohio and many of you in this audience may have helped in completion of those 140 questionnaires.

Some of the more important findings of the Ohio study are as follows: Ohio grain elevators and processing firms received a total

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[2/] Hennen, Gary, E. Dean Baldwin, Donald W. Larson and John W. Sharp. "Ohio Grain Flows by Mode of Transportation and Type of Grain Firms for 1970 and 1977: A Comparison." Research Bulletin 1124, Ohio Agricultural Research and Development Center, Wooster, Ohio, December, 1980.

of 735 million bushels of grain and oilseeds from farms and firms in Ohio and from neighboring states, principally Indiana and Michigan, in 1977. Interstate grain receipts by mode of transportation in 1977 changed significantly from those reported for 1970. Grain receipts by rail transportation decreased by about 33 percent compared to increases of 100 percent for truck transport and 50 percent for water transport. Intrastate grain receipts or grain receipts within the state of Ohio moved almost entirely by truck in 1970 and 1977. Slightly more than 73 percent of total out-of-state shipments or 325.2 million bushels went to overseas exports in 1977 compared to 37 percent of the 1970 out-of-state shipments that went export. In constrast, domestic shipments decreased relatively from 63 percent of total out-of-state shipments in 1970 to 24 percent in 1977, and absolutely from 143.5 million bushels in 1970 to 105.5 million in 1977. Of all grain and oilseed exports, Toledo, East Coast and New Orleans handled 43 percent, 44 percent and 13 percent, respectively, in 1977, compared to 75 percent and 25 percent, respectively, in 1970 with no exports reported through the Gulf. Grain farmers have greatly increased the demand for and capacity of on-farm storage facilities and have reduced grain and oilseed marketings during the harvest period. Today's farmer can evaluate a wider range of marketing alternative before selling his output and has the capability to ship larger quantities of grain longer distances to various markets.

Because of changing markets, increased energy costs and financial difficulties of the railroad industry, the shipment of grain and oilseeds by type of transportation in 1977 differed in several

ways from that of 1970. One half of the out-of-state grain shipments moved by rail, 42 percent by water and 6 percent by truck in 1977 compared to 63 percent, 28 percent and 9 percent, respectively, in 1970. Water transportation has gained at the expense of other transportation modes and reflects the growing export demand for Ohio grain, particularly corn shipments to the Gulf and through Toledo as well as the high energy efficiency and more favorable freight rates of water transportation relative to rail or truck. If export markets remain strong in the 1980s and energy costs continue to escalate, water transportation can be expected to further increase its share of the grain transportation business.

In 1977 country elevators acquired slightly more than half of all first handler grain, 256.9 million bushels which is a decline from the 1970 level of 66 percent of the total. First handler grain movements are those moving directly from farms or firms located in Ohio and in surrounding states to grain firms in Ohio. Terminal and export elevators and processors increased first handler receipts both relatively and absolutely from 1970 to 1977.

Terminal and export elevators were the biggest handlers of interstate grain; nearly 60 percent of the total shipments in 1970 and in 1977. Country elevator shipments declined slightly from the 1970 level of nearly 39 percent of total shipments to 35 percent, while shipments by processors increased slightly.

Grain transportation issues of the 1980s:

(1) Increased Railroad Abandonments.

Ohio and many other states have already suffered from a substantial amount of rail abandonment. However, increased rail abandonments can be expected in the 1980s.

ConRail is in deep financial trouble and unless the Reagan Administration which is fiscally conservative comes to the rescue of ConRail there may be no alternative other than to further cut back on the present ConRail System in order to achieve an economically viable ConRail.

(2) Rail Rates That Increase Faster Than the Rate of Inflation.

Under the Staggers Rail Act railroads have increased rate-making flexibility. Look for rail rates to increase faster than the inflation rate as railroads attempt to improve their profitability and their return on equity capital. Rail rates may increase faster on branch lines to improve profitability than rates on main lines for unit train shippers or where truck and water shipments compete with rail.

(3) Increased Water Shipments.

If export markets continue strong, water shipments will likely increase their share of total grain shipments. New barge loading facilities on the Ohio River and new facilities on the Great Lakes such as those at Burns Harbor, Indiana, and Saginaw, Michigan, will increase water shipments. Such increased shipments could result in capacity bottlenecks on the St. Lawrence Seaway as well as on the Ohio-Mississippi River System.

(4) Truck Transportation

The Motor Carrier Act of 1980 has already resulted in significant deregulation of the motor carrier industry.

Increased rate freedom and exemption of some commodities such as animal feeds from regulations have already been achieved. A major concern of the opponents of this Act was that deregulation of the trucking industry would greatly reduce motor carrier service to rural communities. The 1980s will be a period in which to assess some of the impacts of the Motor Carrier Act on truck transport service to rural areas.

(5) Rural Roads and Highways

According to 69 percent of Ohio farmers, the rural road and bridge system is already a serious problem or will become one within 3 to 5 years. The condition of the system is declining, repair and maintenance costs are increasing and because of declining fuel use tax collections are decreasing. Two major questions are: how can the maintenance and improvement of this system be financed and secondly, what part of this system ought to be maintained and improved. The financing question is one of who should pay the bill. Should the cost be paid through increased property taxes for rural property owners who would also be the major beneficiaries of the improvements? Should increased state funds be used to improve and maintain local roads? How should these funds be generated?

(6) Changing Structure of Agriculture

Farms will continue to decrease in number, increase in size and become more specialized in corn and soybean

production. The decline in farm numbers slowed to a 1.1 percent annual rate in the 1970s while farm size increased to over 400 acres per farm by the end of the decade. Both the number of large farms (1000 acres or more) and small farms have been increasing in the 1970s. This changing structure of agriculture means a change in the demand for services provided by the grain industry. On the one hand, we have the large commercial grain farmer with substantial on-farm storage capacity who can dry, store and transport his grain in large quantities to distant markets. On the other hand, we have many small farmers who do not have such capabilities and will continue to need many of the services currently provided by country elevators. Thus, it appears that a certain dualism is developing in agriculture which may also demand quite different services from the grain industry.

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